Appendix B: King County and Washington Landmark Documents



King County Office of Cultural Resources

Arts Commission Landmarks and Heritage Commission Public Art Commission

506 Second Avenue, Room 1115 Seattle, WA 98104-2311 (206) 296-7580 (206) 296-8629 FAX (206) 296-7580 V/TDD

KING COUNTY LANDMARKS AND HERITAGE COMMISSION

FINDINGS OF FACT AND DECISION 14TH AVENUE SOUTH BRIDGE

SUMMARY

The King County Landmarks and Heritage Commission designates the King County-owned portion of the 14th Avenue South Bridge, spanning the Duwamish River from 14th Avenue South in proceedings of Tukwila, Washington, a King County Landmark. The bridge is jointly owned by the King County Department of Transportation, Roads Services Division, and the City of Tukwila.

Property Description: That portion of the bridge and its associated approach which is located in unincorporated King County.

FINDINGS

The King County Landmarks and Heritage Commission designated the 14th Avenue South Bridge a King County Landmark at its December 19, 1996 meeting. The decision was based on the property meeting criterion A3 of King County Code 20.62.040. The bridge is the singular extant example of a Scherzer rolling lift bridge in Washington State. The entire bridge is listed on the National Register of Historic Places. In making its decision the Commission made the following findings:

- a. The 14th Avenue South Bridge was built in 1930-31 by the Puget Sound Bridge and Dredging Company.
- b. The Scherzer rolling lift bridge design was developed in 1895 by William Scherzer, owner of a Chicago bridge building company (Scherzer Rolling Lift Bridge Co.) The Scherzer design is unique because the leaf rotates on a quadrant which rolls along horizontal track girders. In contrast to the trunnion bascule which has a fixed position axis rotation, the axis of a Scherzer bridge has a longitudinal motion within the structure. As a result, it provides a wider opening for the passage of vessels than the fixed trunnion design.

- c. The 14th Avenue South Bridge is associated with brothers Donald Hampton Evans and Daniel Lester Evans, bridge engineers whose projects for King County include the Stuck River bridge, Green River Gorge bridge, and the 14th Avenue South bridge. Don Evans was chairman of the King County Board of Commissioners at the time the bridge was proposed for construction; in this capacity he drew on his engineering expertise to evaluate bridge design proposals. As a proponent of the Scherzer design, he pointed out its widespread use in the eastern states, as well as its excellent performance in meeting the demands of urban area traffic. Daniel Lester Evans served as the resident construction engineer throughout the project, and was well respected for his careful fiscal management and prudent field decisions.
- d. Bascule bridges are one of four types of movable bridges; the others being swing, vertical lift, and floating. Bascule is French for "balance" or "see-saw" and the design type has its roots in medieval drawbridge prototypes. Modern bascule bridges were first constructed in Europe in the mid-19th century; the most famous example of which is the Tower Bridge in London, completed in 1895. Significant late 19th century bascule bridges in the United States include the Michigan Avenue Bridge in Buffalo, New York and the Van Buren Street Bridge in Chicago (a Scherzer rolling lift design).
- e. There are four types of bascule bridges: Rall, simple trunnion (Chicago), Strauss and Scherzer. By the late 1920s bascule bridges were rapidly replacing swing drawbridges for spanning rivers with both heavy vehicular and boat traffic, and many were built in connection with major public works projects throughout Washington state. The bascule bridge with its advantages of a wide center channel free of piers, increased space for docking, and fast operating speed is particularly well suited for locations such as Seattle and Chicago where heavy bridge traffic has to be frequently interrupted by bridge openings to accommodate boat traffic.
- f. Local examples of bascule bridges include Salmon Bay Great Northern Railroad Bridge (west of the Hiram Chittenden Locks; single leaf trunnion type, 1913); and the four Lake Washington Ship Canal bridges (Ballard, Fremont, University, and Montlake Bridges; all double-leaf trunnion types, completed in 1925). The 14th Avenue South Bridge is the only bascule bridge of its type in the state.

FINAL DESIGNATION DECISION

At its December 19, 1996 meeting the King County Landmarks and Heritage Commission unanimously approved a motion to designate the 14th Avenue South Bridge as a King County Landmark based upon the above findings.

Findings of Fact and Decision 14th Avenue South Bridge January 2, 1997 Page 3

Features of Significance: All components of the bridge and its associated approach (starting at grade) located in unincorporated King County.

PROTECTION MEASURES

Controls

No significant feature (as noted above) may be altered, whether or not a building permit is required, without first obtaining a Certificate of Appropriateness from the Landmarks and Heritage Commission pursuant to the provisions of KCC 20.62.080. The following exclusion is allowed:

In-kind maintenance and repair.

No new construction may take place within the boundaries of the designated parcel, whether or not a building permit is required, without first obtaining a Certificate of Appropriateness from the Landmarks and Heritage Commission pursuant to the provisions of KCC 20.62.080.

Incentives

The following incentives are available to the property owner:

- 1. Eligibility for grant funds for building rehabilitation (as available) through the King County Historic Preservation Office.
- 2. Eligibility for technical assistance from the King County Historic Preservation Program.
- 3. Eligibility for historic site marker.

Decision made December 19, 1996. Findings of Fact and Decision filed January 2, 1997.

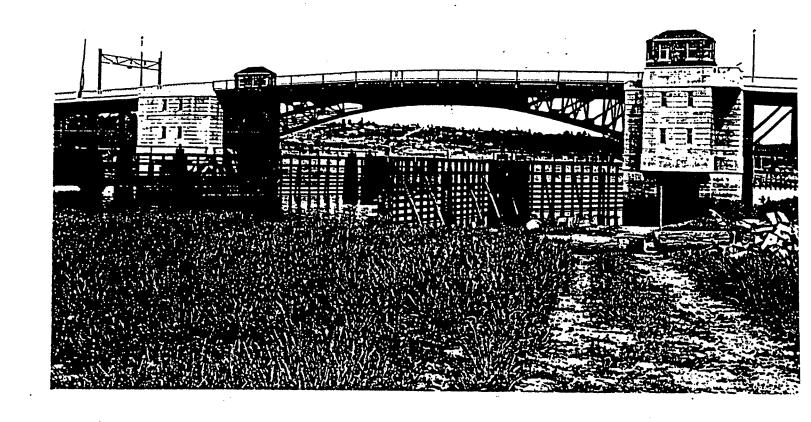
KING COUNTY LANDMARKS AND HERITAGE COMMISSION

Robert S. Gruhn, Chair

1-2-97

Date

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One of a Kind the 14th Avenue South Bridge

opened for traffic and waterway vessels March 1931

King County Cultural Resources Division King County Landmarks and Heritage Commission & 44 500 Second Avenue, Seattle, Washington 98104

KING COUNTY LANDMARK REGISTRATION FORM

This form is for use in nominating individual properties or districts. See instructions in Guidelines for Completing King County Landmark Forms. Complete each item by marking "x" in the appropriate box or by entering the requested information. If an item does not apply to the property being documented, enter "N/A" for "not applicable." For functions, styles, materials, and areas of significance, enter only the categories and subcategories listed in the instructions. For additional space use continuation sheets. Type all entries.

1. Name of Property	
historic name 14th Avenue South Bridge	
other names/site number Sixteenth Avenue	
or King County Bridge No 3179 (1	393-A)
2. Location	
street & number Across the Duwamish river	at 16th Avenue South in Tukwila to
14th Avenue South in unincorporate	
city, town north half of bridge is in Tukwila	
unincorporated King County.	·
state Washington code_county King	code zip code 98108
3. Classification	
Ownership of Property Category of Property	Number of Resources within Property
privatex_ building(s)	Contributing Noncontributing
x_public-local district	_1_ building(s)
public-Stateobject	object
public-Federalsite'	cite
structure	site structure Total
<u>_A_</u> structure	Total
NT Contract monthly to many auto-linkings	Number of contributing resources
Name of related multiple property listing:	—
	previously designated as King
	County Landmarks: none
4.Owner of Property	••
name north half of bridge is owned by Tuk	
south half of bridge is owned by King	
bridge tender's house is owned by Ki	
original 14th Avenue South brick roa	
street & number 16th Avenue South to 14th	1 Avenue South
city, town Tukwila, Washington and uninco	rporated King County Washington
vicinity the South Park Community	- · · · · · · · · · · · · · · · · · · ·

state Washington zip 98108

5. Function or Use

Historic Functions (enter from instructions)
Vehicular traffic with pedestrian walkways
walkways on each side of the bridge

Current Functions (enter from instructions)
Vehicular traffic with good pedestrian
walkways on each side of the bridge

6. Description

Architectural Classification (enter from instructions) M
A Scherzer double-leaf Rolling Lift Bascule Bridge

Materials (enter categories from

instructions)

foundation:

walls:

roof:

other:

Describe present and historic physical appearance.

The 14th Avenue South bridge is a Scherzer Rolling Lift Bridge, commonly referred to as a "rolling lift bascule" - THE ONLY ONE OF ITS KIND IN THE STATE OF WASHINGTON (there are none in Oregon).

In this type of bridge "the leaf rotates on a quadrant which rolls along horizontal track girders. In contrast to the fixed position of axis rotation of the trunion bascule, the axis of rotation of the Scherzer Bridge has a motion of translation longitudinally with the structure. Consequently the Scherzer Bridge generally provides a greater clear opening for any total length of span than that provided by the fixed trunion type." However because the rolling action constantly changed the location of the center of pressure of the load on the abutment, solid rock foundations were necessary." (10)

"When opened, the bridge recedes from the channel, the span is shortened, and the necessary angular movement is reduced. Rolling friction is substituted for that of trunnions turning in journal bearings, with consequent reduction in resistance to motion. This is the only type of drqw bridge, moving about a horizontal axis, that approaches a swing bridge in the small power required for operation." (8)

The leaves are 95 feet long, c-c. The north and south ends of the bridge are identical, each containing two approach spans of 86'6" and 77'3" which are connected to the shores by identical 240.58' concrete approaches which connect to 120.00' long retaining walls giving an overall structure length of 1285 feet. The bridge roadway has a 4% gradient from each end meeting at a highpoint in the center of the bridge.(2) This adds greatly to the bridges attractiveness and modulates traffic speed through the South Park Neighborhood business district

6. Description (Continuation Sheet)

The leaves of this bridge are much more slender and graceful looking than the north Seattle bascule bridges and make the bridge appear to be longer than it is. The beauty of this bridge is only rivalled by the Montlake Bridge which was designed to be an adornment to the University of Washington.

There are two two-story concrete pier/towers which house machinery and are capped by two one-story brick bridge tender buildings which have hipped roofs covered with rounded tiles. The main bridge tender builder is the north end structure on the east side of the roadway. The control room here is much larger than it appears from the roadway. Within the room there is a stairway down into the pier tower which gives access to the inner workings and maintenance areas of the bridge.

There is a four lane vehicular roadway that is 38 feet wide curb to curb with 6'7" sidewalks on each side of the roadway. Boats have a 32 foot clearance under the closed bridge at mean higher high tide and the opened bridge provides a 125 foot wide channel.

Athough there is strong evidence that this bridge has not been thoroughly maintained, (there is some cracking of the concrete on the span railings and sidewalks, and the south end (west side) tender's building has missing and boarded windows), the overall visual appearance of this unique bridge is the same as when it was opened on March 21, 1931.

7. Statement of Significance

Significance of this property in relation to other properties x national x statewide x local

Applicable Designation Criteria x A1 x A2 x A3 A4 x A5 Criteria Considerations (Exceptions C1 C2 C3 C4 C5

Areas of Significance (enter categories from instructions): Period of Significance: Dates

- 1. Is associated with events that have made a significant 1914-32 contribution to the broad patterns of national, state or local history;
- 2. Is associated with the lives of persons significant in national, 1920-32 1928-32 or local history,
- 3. Embodies the distinctive characteristics of a type, period, style or method of design or construction, or that represents a significant and distinguishable entity whose components may lack individual distinction.
- 5. Is an outstanding work of a designer or builder who has made a substantial contribution to the art.

Cultural Affiliation:
Proliferation of the automobile

Significant Persons: Architect: Scherzer Rolling Lift Bridge Company (A. L. R. S.)

Donald Hampson Evans

Danel Lester Evans

Builder: Puget Sound Bridge & Dredging Company

State significance of property, and justify criteria, criteria considerations, and areas and periods of significance noted above.

Criterion #3 The 14th Avenue South Bridge is the only Scherzer Rolling Lift Bridge within the state of Washington (Oregon doesn't have any). When 1173 of the state's highway bridges were surveyed in 1978, by the State Office of Archaeology and Historic Preservation, (under the authorization of the United States Department of the Interior and funded by the Washington State Department of Transportation), the 14th Avenue South Bridge was selected as one of 58 Washington bridges to be nominated for the National Historical Register.

<u>Criterion # 1</u> The 14th Avenue South Bridge is associated with the opening up of the Duwamish Waterway and also with the opening of the Seattle-Desmoines Highway to accommodate automobile traffic as well as the opening of the Seattle-Tacoma Highway and the opening of the King County Airport (Boeing Field).

7, Statement of Significance (Continuation sheet) Criterion # 1 (continued)

This was the period when the automobile took over as the main method of transportation for the common person.

The choice of a Rolling Lift Scherzer Bridge for this crossing was supposedly so that the bridge opening could allow ocean going traffic to pass above 14th Avenue South. All this was supposed to have been made possible by the choice of a Scherzer Rolling Lift Bridge because of the fact that the leaves not only pivoted but also slid back allowing a larger bridge opening for the same length of bridge. According to County Engineer T. P. Blum this was all bogus because it was unreasonable for large ships to pass through here. He said that he had talked to Marine Underwriter's Insurance Company and that they would cancel the policy of any ship that attempted to go through this 125 foot opening.

<u>Criterion # 5</u> The 14th Avenue South Bridge is an outstanding work of the Scherzer Rolling Lift Bridge Company of Chicago, Illinois. The general plan for the South Park site was drawn by A.L.R.S. of the Scherzer Rolling Lift Bridge Company with modifications by Daniel Lester Evans, King County Deputy Engineer and father of former Governor Daniel J. Evans.

The overall length of this bridge including the approaches is almost a quarter of a mile - 1285 feet and it is a span of great beauty.

The importance of the Scherzer Rolling Lift Bridge can be seen from the fact that the 1943 revised edition of Hool and Kinne's Movable and Long-Span Steel Bridges says that

"The Van Buren Street Bridge in the city of Chicago, a Scherzer rolling bascule, plans for which were completed in 1893, and the famous tower bridge in London, a roller bearing, trunnion bascule constructed about the same time may be regarded as the fore-runners of the modern bascule span." page 1.

The lasting popularity of the Scherzer rolling lift bridge, (not in Washington or Oregon), is attested to by Hool and Kinne,

"In the number of bridges of each type in operation, it is probable that the Scherzer leads, the various types of Strauss coming next, the Chicago or Simple Trunnion being third, and the Rall last." page 38.

7. Statement of Significance (Continuation sheet)

Criterion #2 The 14th Avenue South Bridge is associated with the Evans brothers, Donaldson Hampson Evans and Daniel Lester Evans who were significant in local history. The Evans brothers were both King County bridge Engineers and often worked together on bridge projects. In 1925 they designed and superintended the building of the Stuck River Bridge. They played a significant role in the selection and building of the Scherzer Rolling Lift Bridge for the South Park site.

After graduating from the University of Washington in 1912, Don H. Evans went to work for King County acting as a deputy engineer under the County Engineer from 1913-17. In 1917 he volunteered for duty and went to France with the Americam Expeditionary Force. After two years he returned to his old job as deputy Engineer for King County.

In 1921 Don H. Evans became head of the King County Bridge Engineering department, and his brother D. Lester Evans was employed as an Inspector in the King County Engineering department.

In 1923 they built the East Channel Mercer Island Bridge.

In 1925 Don H. Evans wrote a thesis entitled Design and Construction of the Green River Gorge Bridge at Franklin, Washington as part of the requirements for his Bachelor of Science degree in Civil Engineering. In 1926 he coauthored with his brother Daniel Lester Evan's his final thesis, entitled The Stuck River Bridge, for which they each received, from the University of Washington, the degree of Civil Engineer

In 1926 Don H. Evans was elected county engineer and took office in 1927. After about a year he turned in his resignation having been chosen as one of the commissioners of King County in 1928. He was chairman of the King County Commissioners at the time the Scherzer Rolling Lift Bridge was chosen for the 14th Avenue South site.

Daniel Lester Evans started working for King County in 1921. By 1929 he was an assistant County Engineer a post he held until 1935. He started working for the county again in 1946 continuing to 1959 giving him the distinction of being a King County bridge Engineer for twenty nine years. He was the King County construction engineer on the building of the 14th Avenue South Bridge.

Daniel Lester Evans was a whiz at computing bridge stresses and in 1925 he submitted to the University of Wisconsin a new method for calculating secondary stresses which was lauded by P. E. Turneaure, Dean of the College of Mechanics and Engineering. Turneaure wrote back to Evans, "I think your method of calculation is certainly an improvement over that presented in our text book. With your permission, I will include it in the next edition, with proper credit."

The Evans' brothers were skilled bridge engineers giving King County the ability to design and build bridge structures in house. Several of the bridges they worked on have unique qualities. This can be seen in the Green River Gorge Bridge at Franklin, Washington, the Whitney Bridge over the Stuck River and the 14th Avenue South Bridge.

7. Statement of Significanc (Continuation sheet)

Criterion # 2 (continued)

Although the Green River Gorge Bridge at Franklin, Washington was designed by Charles D. Calley, Don H. Evans made the preliminary maps, figured the stresses and was the Resident Engineer in charge of construction.

The Whitney Bridge over the Stuck River was designed by Don H. Evans and Daniel Lester Evans. According to Don H. Evans this "K" type truss, when it was built in 1925, was the only one of its kind in the state of Washington and one of the few in the United States.

Movable bridges were generally designed by bridge companies, but the local government's bridge engineers had great influence on the type of bridge to be built, especially in 1929, when Don H. Evans was, not only a bridge engineer but also, chairman of the three member King County Council. When looking at a bridge to replace the old 14th Avenue South Swing Draw Bridge, the obvious decision would have been to go for the same trunnion type bascule bridges that had been used in north Seattle but the Evans brothers decided to go for a Sherzer Rolling Lift Bridge. This was not a brash act on their part as the Sherzer Rolling Lift Bridge was popular in many eastern cities and had an established track record.

Daniel Lester Evans was the resident construction Engineer on the 14th Avenue South Bridge. According to King County bridge engineer, Thomas P. Blum, Evans' idea to cut 3 feet off the outside perimeter of the piers and raise the depth of the piers 5 feet above what the contractor wanted, saved the taxpayers \$45,000.

Don H. Evans was swept out of office, with most of the other Republicans as a result of the Great Depression. However, his reputation as a bridge engineer was so good that in 1932 Seattle Mayor John Dore, a Democrat, tried to get him appointed to the office of City Engineer but he failed confirmation of the City Council by a vote of 6-3. Again, four years later, in 1936 Mayor Dore tried to appoint Don Evans as City Engineer, but once again he failed confirmation, this time by a vote of 6-2.

8. Major Bibliographical References

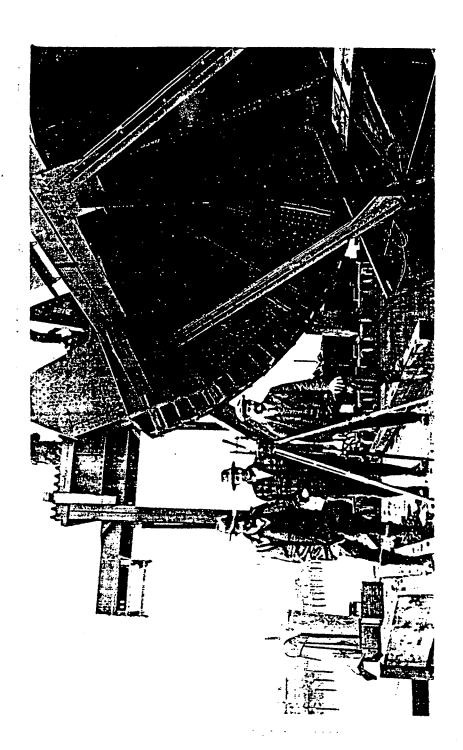
- I. Bean, Karen, "King County Historic Sites Survey, Office of Historic Preservation June 15, 1985
- 2. Blum, T. P. "The King County Engineer's Office, Bridge and Wharf Record dated Dec. 9, 1933
- 3. Evans, Betty, (daughter of Don H. Evans)"Conversation with Tim O'Brian on March 5, 1996 at her home.

X See continuation sheet

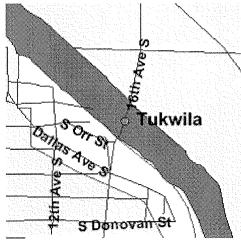
	Primary location of additional data:
Previous documentation on file	State Historic Preservation
included in King County Historic Resource	State Thistorie Treservation
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previously designated a King County Landman	other State Agency
previously designated a Community Landmark	Federal Agency
listed in Washington State Register of Historic	Places X Local government
preliminary determination of individual listing	University
(36 CFR 67) has been requested	Other (specify repository)
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previously determined eligible by the National	Register
designated a National Historic Landmark	
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Verbal Boundary Description	
Boundary Justification	-
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8. Major Bibliographical References (Continuation sheet)

- 4. Evans, Donaldson Hampton and Evans, Daniel Lester, The Stuck River Bridge a thesis submitted for the degree of Civil Engineer, University of Washington 1926
- 5. Evans, Governor Daniel J, (son of Daniel Lester Evans) "Telephone conversation with Tim O'Brian on February 24, 1996
- 6. Hool, George A. and W. S. Kinne editors <u>Movable and Long-Span Steel Bridges</u> Compiled by a Staff of Specialists Second Edition McGraw-Hill Book Company Inc. New York and London 1943
- 7. Hazelet, Craig P. "Letter from the Scherzer Rolling Lift Bridge Co., to Mr. Don Evans, chairman of the King County Council, dated December 22, 1928
- 8. Hovey, Otis Ellis, Movable Bridges in two Volumes
 Volume 1 Superstructure New York, John Wiley & Sons, Inc.
 London: Chapman & Hall, Limited 1926
- Smith, Dwight A., James B. Norman and Peter T. Dykman, Historic Highway Bridges
 of Oregon Second Edition Oregon Historical Society Press 1989
 Originally published by the Oregon Dept. of Transportation, 1986
 Inventory and Evaluation pp. 39-49.
- 10. Soderberg, Lisa, Historic Bridges and Tunnels in Washington, Washington State
 Office of Archaeology and Historic Preservation, Olympia, Wa, November, 1980.







- Historic site
- Historic district A site or district which has been selected through the query window.
- A site or district s elected with map's Identify tool or the Zoom-to-Feature tool in the results window.

Status definitions:

DOE: A property formally Determined Eligible for the National Register of Historic Places by the National Park Service.

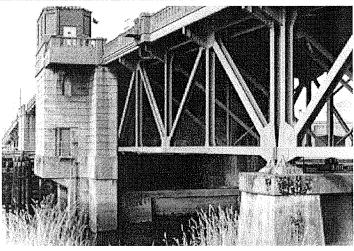
NHL: A property listed as a National Historic Landmark by the National Park Service (the highest historic classification a property can receive).

REMOVED: A property formally removed from the National Register of Historic Places by the National Park Service.

TH: A context study developed for a specific topic and listed on the National Register of Historic Places (NRHP). Individual resources noted within the document are individually evaluated and listed on the NRHP.

TH-WHR: A context study developed for a specific topic and listed only on the Washington Heritage Register (WHR). Individual resources noted within the document are individually evaluated and listed on the WHR.

WHR: A property listed only on the



14th Avenue South Bridge

Spans Duwamish River Seattle

Download pdf documentation

(File size: about 2 M)

Historic use: Transportation - Road-Related

Built: 1931

Architect: Hunt, Thomas D.

Builder: Puget Sound Bridge and Dredging Co.

OAHP ID: KI00259 Listed: Jul 16, 1982 Status: WHR/NR Classification: STR Properties: 1

Thematic: Historic Bridges/Tunnels in Washington State TR

Area of significance: Engineering

Level: Local Criteria: C

OAHP Detail Page 2 of 2

Washington Heritage Register.

WHR DOE: A property formally Determined Eligible for the Washington Heritage Register by OAHP.

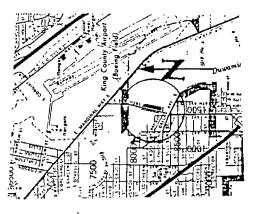
WHR/NR: A property listed on both the Washington Heritage Register and the National Register of Historic Places.

Department of Archaeology & Historic Preserva

1063 South Capitol Way, Suite 106 Olympia WA 98501

Phone: 360-586-3065 Fax: 360-586-3067

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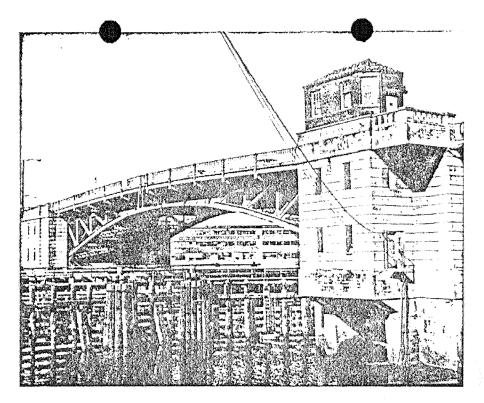


the Scherzer Bridge generally provides a greater clear opening for any total length of span than that provided by the fixed trunnion type. However, because the rolling action constantly changed the location of the center of pressure of the load on the abutment, solid rock foundations were necessary. Significance

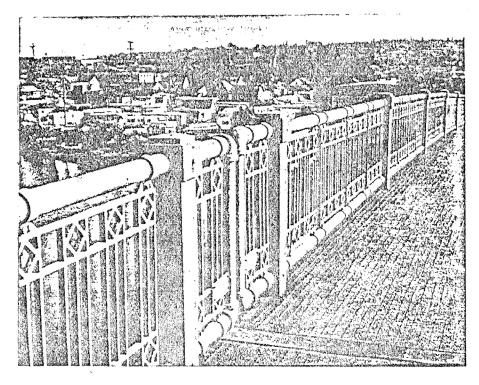
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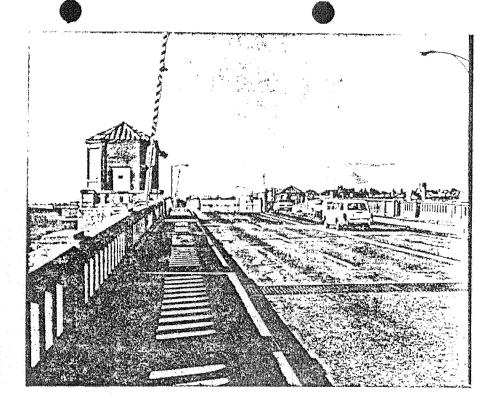
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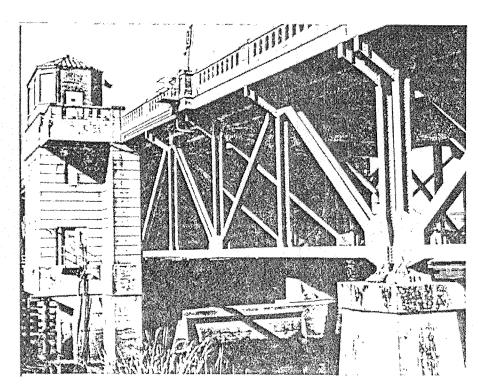
14th Avenue South Bridge



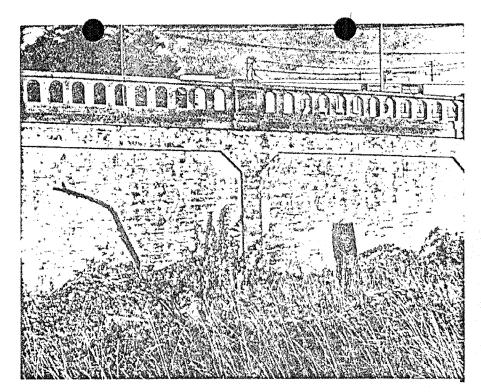
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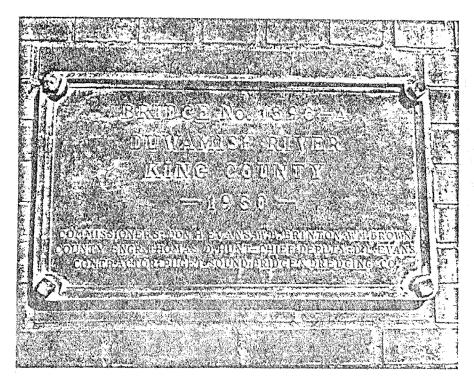
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14th Avenue South Bridge



STATE OF WASHINGTON

OFFICE OF ARCHAEOLOGY AND HISTORIC PRESERVENTION AM 9 48

111 West Twenty-First Avenue, KL-11 • Olympia, Washington 98504 • (206) 753-4011

September 7, 1982

Paul Hopper, P.E. King County Engineer King County Courthouse 516 Third Avenue Seattle, WA 98104

Dear Mr. Hopper:

It gives us great pleasure to notify you that

14TH AVENUE SOUTH BRIDGE spans Duwamish River Seattle, Washington

has been selected by the Keeper of the National Register for placement in the National Register of Historic Places.

The National Register records the tangible reminders of the history of the United States and is the official list of the nation's cultural resources worthy of preservation.

We are pleased to apprise you of this honor.

Sincerely

Uacob E. Thomas

State Historic Preservation Officer

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